

ABSTRACT OF THE DISCLOSURE

A apparatus and method of thermally treating a wafer or other substrate, such as rapid thermal processing (RTP). An array of radiant lamps directs radiation to the back side of a wafer to heat the wafer. The front side of the wafer on which the patterned integrated circuits are being formed faces a radiant reflector. The wafer is thermally monitored for temperature and reflectivity from the side of the reflector. When the lamps are above the wafer, an edge ring supports the wafer in its edge exclusion zone. Alternatively, a reactor includes upwardly directed lamps and a reflector above and facing the front side of the wafer.